

WE CLAIM:

1. A process for the offset printing of a receiving medium with a functional pattern comprising in any order the steps of:
5 applying a printing ink to a printing plate and wetting said printing plate with an aqueous fountain medium containing a solution or a dispersion containing at least one moiety having at least colouring, pH-indicating, whitening, fluorescent, phosphorescent, X-ray phosphor or conductive properties.
- 10 2. Process according to claim 1, wherein said moiety having at least colouring, whitening, fluorescent, phosphorescent, X-ray phosphor or conductive properties is an intrinsically conductive polymer.
- 15 3. Process according to claim 2, wherein said intrinsically conductive polymer is selected from the group consisting of polyanilines, polyaniline derivatives, polypyrroles, polypyrrole derivatives, polythiophenes and polythiophene derivatives.
- 20 4. Process according to claim 2, wherein said conductive polymer is a polymer or copolymer of a 3,4-dialkoxythiophene in which the two alkoxy groups may be the same or different or together represent an optionally substituted oxy-alkylene-oxy bridge.
- 25 5. Process according to claim 2, wherein said intrinsically conductive polymer is selected from the group consisting of: homopolymers of (3,4-methylenedioxy-thiophene), (3,4-methylenedioxythiophene) derivatives, (3,4-ethylenedioxythiophene), (3,4-ethylenedioxythiophene) derivatives, (3,4-propylenedioxythiophene), (3,4-(propylenedioxythiophene) derivatives, (3,4-butylenedioxythiophene) and (3,4-butylenedioxythiophene) derivatives and copolymers thereof.
- 35 6. Process according to claim 1, wherein said aqueous fountain medium further contains a polyanion.
- 40 7. Process according to claim 6, wherein said polyanion is poly(styrenesulfonate).

8. Process according to claim 1, wherein said aqueous fountain medium further contains a di- or polyhydroxy- and/or carboxy groups or amide or lactam group containing organic compound.
- 5 9. Process according to claim 8, wherein said di- or polyhydroxy- and/or carboxy groups or amide or lactam group containing organic compound is selected from the group consisting of 1,2-propandiol, propylene glycol, diethylene glycol, N-methyl pyrrolidinone and di(ethylene glycol)ethyl ether acetate.
- 10 10. Process according to claim 8, wherein said process further contains a step subsequent to printing in which said receiving medium within 10 minutes of printing is heated to a temperature of 100 to 250°C.
- 15 11. Process according to claim 1, wherein said aqueous fountain medium further contains an aprotic organic compound with a dielectric constant ≥ 15 .
- 20 12. Process according to claim 11, wherein said process further contains a step subsequent to printing in which said receiving medium within 10 minutes of printing is heated to a temperature of $\leq 150^\circ\text{C}$.
- 25 13. Process according to claim 1, wherein said aqueous fountain medium further contains a non-ionic or anionic surfactant.
14. Process according to claim 1, wherein said aqueous fountain medium has a viscosity at 25°C after stirring to constant
30 viscosity of 30 mPa.s as measured according to DIN 53211.
15. Process according to claim 1, wherein said aqueous fountain medium contains a dye and/or a pigment such that the colour tone of the ink and the background cannot be distinguished by the
35 human eye.
16. Process according to claim 1, wherein said printing ink contains a dye and/or a pigment such that the colour tone of the ink and the background cannot be distinguished by the human eye.